Small Overview Of The Integration Methods In
OpenModelica

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1 Methods

Name:	dassl
Order:	1-5
Step Sizie Control:	true
Order Control:	true
Backround:	Adams Moulton; with colored numerical jacobian, with interval root finding
Stability Region:	variable; depend from order

Name:	dasslsteps
Order:	1-5
Step Sizie Control:	true
Order Control:	true
Backround:	dassl as default, but without consideration of numberOfIntervals or stepSize. Output point are internal dassl
Stability Region:	variable; depend from order

Name:	dasslwort
Order:	1-5
Step Sizie Control:	true
Order Control:	true
Backround:	dassl; without internal root finding
Stability Region:	variable; depend from order

Name:	euler
Order:	1
Step Sizie Control:	false
Order Control:	false
Backround:	explicit euler
Stability Region:	$(1, 0)$ Padé ≤ 1

Name:	rungekutta
Order:	4
Step Sizie Control:	false
Order Control:	false
Backround:	classical runge kutta method
Stability Region:	$(4, 0)$ Padé ≤ 1

Name:	radau1
Order:	1
Step Sizie Control:	false
Order Control:	false
Backround:	radau IIA with one point
Stability Region:	$(0, 1)$ Padé ≤ 1

Name:	radau3
Order:	3
Step Sizie Control:	false
Order Control:	false
Backround:	radau IIA with two points
Stability Region:	$(1, 2)$ Padé ≤ 1

Name:	radau5
Order:	5
Step Sizie Control:	false
Order Control:	false
Backround:	radau IIA with three points
Stability Region:	$(2, 3)$ Padé ≤ 1

Name:	lobatto2
Order:	2
Step Sizie Control:	false
Order Control:	false
Backround:	lobatto IIIA with two point
Stability Region:	$(2, 2)$ Padé ≤ 1

Name:	lobatto4
Order:	4
Step Sizie Control:	false
Order Control:	false
Backround:	lobatto IIIA with three points
Stability Region:	$(3, 3)$ Padé ≤ 1

Name:	lobatto6
Order:	6
Step Sizie Control:	false
Order Control:	false
Backround:	lobatto IIIA with four points
Stability Region:	$(4, 4)$ Padé ≤ 1

Notes

simflags `-maxStepSize` and `-maxIntegrationOrder` specifies maximum absolute step size and maximum integration order, used by dassl solver.

General step sizie without control $\approx \dfrac{\text{stopTime} - \text{startTime}}{\text{numberOfIntervals}}$

For (a, b) Padé see `http://en.wikipedia.org/wiki/Pad%C3%A9_table`